**Advancements in the Treatment and Management of Lung Cancer**

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The cancers this show hosted by Dr. Bill Evans, and brought to you by the cancer assistance program help when you really need it.

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It's a community based not for profit organization that offers free services for individuals and families affected by cancer living right here in the greater region of Hamilton and some of the surrounding communities. And Bill, this is a really important month for you because this is Lung Cancer Awareness Month. And that was your speciality it

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was and it still is an area of great interest to me, because of the changes that are happening, I'd like to keep on top of them. And I think with our guests, people are going to hear some really remarkable changes in the management of lung cancer. And it's so important. This is a very common cancer. In fact, in Canada and 2019 is expected to be over 29,000 individuals diagnosed with lung cancer, right in our area, what we used to maybe still call our Lynn Hamilton Niagara Haldimand. Brant area. So over 1000 new lung cancer cases diagnosed annually. And it's the second most common cancer in men after prostate cancer and the second most common after breast cancer in lemon County for about 13% of all the cancers in each of the genders. And it's still got a really relatively poor overall survival rate. Compared to other countries in the world, it's actually Canada is doing relatively well. But still not all, it's about 19% of, of individuals diagnosed with lung cancer will be alive at five years. So as I always say, it's better than better to prevent it and never get it than to have a diagnosis of lung cancer. And, of course, we can avoid it in large measure by not smoking. And that's still a challenge because about 20% of the population still are current smokers. And then there's all the individuals who are wisely given up smoking, but there's still a risk because as time passes, the risk decreases. But slowly. And of course, in a city like Hamilton, there are other exposures occupational exposures that could contribute to lung cancer because of the work with various metals. The steel industry coke production, exposure to diesel fumes, a variety of different things that can cause a lung cancer, if you're going to get in like to find it when it's really, really small. But the problem is the lungs are very silent part of your body. And so you can grow lumps that are 510 centimeters in diameter in your chest and not have a symptom. So the best way of finding it is to screen for it. And screening programs are being piloted in our province and someday expect to see them province wide, currently not yet available in Hamilton, but coming out hope. And finding these small cancers will increase the probability that individuals can have them taken out and be cured. But otherwise, you're dealing predominantly with radiation and systemic therapy, which is why our guests will focus on those two areas, and talk about the progress that's been made over the last several decades, particularly the last decade for systemic therapy. And I use the word systemic therapy because not chemotherapy because there are more drugs that we can put in a person's system than just chemotherapy drugs. There are drugs that affect the immune system that drugs that target specific molecular abnormalities in cancer cells. And remarkably, radiation has changed, so that it's highly precise in how it's administered. And so our radiation oncologist guests will go into the details of that. But it's truly remarkable what's complex there. So the progress I think you'll hear in this today's show, I think you'll feel very encouraged by and some of the techniques that are advancing the outcomes for lung cancer patients are being applied across a whole host of different cancers leading to improvement. So as a field oncology is one where there's a lot of promise of much better outcomes in the coming years as a result of these developments and radiotherapy and systemic therapy techniques, all

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about lung cancer and some of the things that are happening right here in Hamilton in terms of advancement and systemic treatment. That's coming up on this edition of the cancer assist show. We'll be back in just a moment.

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You're listening to the cancer assist show with Dr. Bill Evans and host Shawna Thompson on 900 ch ml. Good

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afternoon you're listening to 900 ch ml and this is the cancer assist show. I'm Shona Thompson here with Dr. Bill Evans. Our focus this month is on lung cancer, which of course bill you know a little something about after all your years as an oncologist. I do

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know a bit about it, but I must say the field is changing very rapidly now. And I'm glad we brought a couple of experts in with us today, who will tell us how it's changing and how it's impacting the outcomes for lung cancer patients. And our first guests I'm happy to welcome to the studio is Dr. Nan Swaminathan. He's a radiation oncologist. So the Juravinski Cancer Center welcome. And

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thank you very much for the invitation this afternoon. Now, we've talked

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to some radiation oncologist previously on the show, but I hope we get some new listeners from time to time. So maybe, just to start off, he could describe what a radiation oncologist is and does. So

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that's great. But a radiation oncologist is a specific type of cancer doctor who uses X ray treatment to treat cancer is of all different types. So if you think about getting a chest X ray, which is which is a type of test and a lot of people have commonly gotten their an x ray of their arm or leg or things like that, that's a type of radiation that we use, the only difference is that we use a much higher energy of that x ray. And so we're able to deliver a very high dose of radiation, which is much more significant than the dose that you would receive if you were to get a diagnostic X ray. And those x rays are generated, they they're designed to kill cancer cells. So we use very high energy high dose X rays to kill cancer cells. And that's that's what a radiation oncologist does

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know, when I trained the energy came from a cobalt unit. But I don't think there's any cobalt units around or very few,

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if you look around there, maybe one or two, but for the most part, radiation is now done using a more advanced technology machine. So we use machines called linear accelerators, which basically take X rays, focus them and allow them to treat targets within the body. It's a very, it's a it looks like an x ray machine when you go in, but it generates high energy X rays.

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Now speaking of going in, these machines are housed in a very special facility in the cancer center, that's usually in the basement below ground. What and most people have never had the experience, even most doctors have not had the experience even seeing where linear accelerator is housed, maybe you could just give a little description of that as well.

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Sure. So the rooms tend to be about the size of one's living room, maybe a little bit larger than that. The machines themselves, they look like they look like X ray units, they're they're roughly the size of about a small vehicle. They're basically attached to the wall, and then a a radiation image, it looks like an imaging device sticks out of the wall, but it actually is the area where the treatment is being done. And so patients lie down on a bed or we call a couch, and that machine moves around them. So that that that X ray head that sticks out from the wall moves around the patient. And the X rays come in from multiple different angles, from the front view from the back of you sides, what have you. And then along the walls, there's a lot of control units, there's a lot of cameras in the room, so that people can see you from outside and make sure that you're not moving during the treatment and the things are relatively safe. You'll notice that also when you go into a radiation machine, a room where the machine is housed, it's it's it's almost soundproof, it's very, it's because there's a lot of light in the walls or a lot of shielding within the walls that allow those x rays not to bounce off into the general public area where people are staying and sitting. So the the rooms are very well shielded. So the the X ray stay concentrated within that room and don't go anywhere else.

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Now one of the things that's changed incredibly in radiotherapy is the precision with which it's delivered. And, again, going back to when I train many years ago, you tended to put on rectangles and you treat it from the front and the treated from the back. But a lot of normal tissue was irradiated along with the tumor you were trying to target. Now we're into an age of real high precision radiotherapy. And I think this is terribly important, particularly as we talk about lung cancer, because these aren't tumors that are a perfect sphere, they take on an irregular shape. And so you want to deliver the radiation to that irregular shape and not to the normal tissues. How's that accomplish that.

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So it's not only the shape of the tumor, it's not only where the tumor is in the body, it's also ourselves. So radiation therapy back, you know, 15 to 20 years ago, and even earlier than that, assume that we were static. We were we didn't move, we were fixed in space. But we know we're moving breathing living beings. So radiation therapy is now more tailored to that aspect. So it's not only the tumor, but also us moving and breathing that the radiation therapy accounts for. So there's two aspects to it. So the first aspect is the the moving and breathing piece. So we're now able to make people more still in their in their position during radiation, we have more advanced couches, we're able to use devices to keep patients more fixed, and allow them not to move as much so that the air that the radiation allows for is much less. The second thing is especially in lung cancer that the tumors in the lung, and the lung moves up and down and left and right and side to side as we breathe in and out. And so the radiation planning that we do now, it counts for that breathing motion. So We use something called a four dimensional CT scan. Most people who have a CT scan they go into to a CT scanner and a picture is taken, what we do is we take that a step further, we actually do a picture while the patient is breathing. And we're able to take those pictures, submit them or add them together, and allow us to create a picture a better picture of where the tumor is at any one point in your breathing cycle. So that could be when you're breathing in breathing out or even mid breath. And we're able to use those specialized pictures in order to get a better idea of where the cancer is during that one point in your breathing. So that's the first, the first piece, the second piece has to do with, as you mentioned, the sculpting of the tumor. So the way I like it is remember when you were growing up, you have those pushpin toys, the upper shape, and you're able to create an impression. So radiation therapy was 20 years ago, a unused pushpin toy. And now what we're able to do is push those pins with relative degrees of strength or finesse, to allow to create a specialized contour of that patient's anatomy. So if the tumor is sitting in a particular part of the lung, or sitting in a particular part of the middle part of the chest, or the mediastinum, we're able to create a radiation beam that sculpts around that area that in a fancy term is something called intensity modulated radiation therapy. So it's basically a pushpin toy that you're creating to make a specialized outline of that patient that allows us to treat the patient with with more certainty around the target. Now, you could ask the question, well, if you're doing that, how do you know you're not missing. And that's the third piece. So the third piece of radiation therapy that's changed dramatically in the last 15 years, is something that's called image guided radiation. So image guided radiation. As you can imagine, he's using imaging to guide our treatment. So for instance, if you're lying down on the bed, and you're just about to have the treatment, instead of just turning on the radiation beam, and assuming you know where you're going, we actually do something called a cone beam CT, which is basically a mini CAT scan that is attached to the radiation unit that you're allowed to the moves around the patient. And then you're allowed to actually see the tumor in basically near real time. And you can see, okay, this is where the tumor is, this is where all the normal organs are that are surrounding the tumor, am I making sure that the radiation that I planned is actually going to that specific area, and we were able to move patients around, shake them a little bit, if necessary, and if it, if it shows, if it shows up to things are lining up to where the radiation was planned, then we can say, Okay, well, now we're safe, we can deliver the treatment. So there's been three major developments in radiation therapy planning, and delivery, that have allowed us to be more precise and more specific about our treatment.

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And the advantage of that precision is,

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so the advantage of that precision is we're able to increase the amount of radiation that we can give to the tumor. And then we can also decrease the amount of radiation that we give to the surrounding organs like the lung. And in the in the case of lung cancer, particularly, the swallowing to the esophagus, the spinal cord, and some of the other nerves and, and the chest wall, all of

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which is relevant to the patient and the side effects they experience from the radiation.

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Yes. So, you know, we were trying to minimize the amount of side effects they get during the radiation. And so by doing this, we're doing our very best to go in a radiation oncology, speak at something called as low as reasonably achievable. And we're trying to reduce the radiation dose to as low as we possibly can without causing harm to the patient.

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So now these sophisticated techniques are applied to lung cancer at different stages of the disease. And I guess one of the interesting things to me is that in the past, we always thought of the small cancers as surgical cancers. But a lot of people who had those small cancers are also elderly and have comorbidities and couldn't undergo surgery relatively easily. And now it's possible with the kind of precision you're talking about to radiate, radiate those smaller lesions with very good outcomes. Can you describe that? Sure. So

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the formal name for that is something called stereotactic body radiation therapy. Basically, what it is, is you're doing ultra high radiation doses. So traditionally, radiation is given in about five or six weeks, a little bit of radiation every day. And the goal of that is to try to control the cancer better, and reduce the side effects. And we talked about how our advances in radiation therapy have allowed us to increase the dose, we can now do so to smaller targets, you know, similar to what a surgeon would operate on an early lung cancer, something that's, you know, five centimeters, four centimeters or less than that, and be able to give not only a higher amount of dosage, but high enough that you could actually compress the treatments. So instead of doing 25 treatments at a specific amount of radiation, you can actually compress that and do the treatments in 45678, less than 10 treatments, and that allows you to give a higher radiation dose biologically to try and ablate the cancer and so really, this is an ablative treatment. And what we're seeing now is we're seeing that these are Patients who were not necessarily candidates for the longer course of radiation, more traditionally are able to go through these treatments because of the convenience aspect of it. And it allows them to get through treatment with minimal disruption to their quality of life. A lot of people who have this treatment tend to be elderly, they tend to be a bit more frail medically. And so sometimes it's difficult for them to go through longer courses of radiation, because of the risks of just coming to coming everyday for treatment having to go through 25 or 30 treatments now that we're able to do it in a much shorter time period, we're able to treat more patients treat them more efficiently and effectively. And that's another important aspect to it,

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as part is like five year survival, rivals of surgical outcomes.

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Yeah, so if you look at a cohort of patients who are treated similar to what a surgical cohort would be, so patients who could have surgery but refused to have surgery, for whatever reason, we're seeing outcomes that are very similar. Our outcomes don't tend to be as greatest surgery because of the patient population that we tend to see, we tend to see more elderly, frail patients who have other medical comorbidities, or medical other medical conditions that may compete with their lung cancer risk. So sometimes we we have to, you know, counsel them on what their realistic expectations are with respect to getting treatment with radiation, but we can tell them that the chances we're going to control the cancer is much better now.

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Now, a far more common problem you confront are the people who have locally advanced disease, and that seems to be where the bulk of radiation focus is, I would say for the lung radiation oncologist. Talk a little bit about that. And if you will, how you interact with the other disciplines involved about when you might combine the radiation with surgery or drugs, recognizing you only have a few minutes?

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Yeah, sure. So when when cancer is more locally advanced to the lung, meaning when there's tumor in the lung, and tumor in the lymph nodes, there's a wide variety of treatments that we can, we can offer patients in terms of the radiation aspect of it, we tend to be more aggressive with our radiation. And unfortunately, because the tumors tend to be a bit more extensive, we can't use that stereotactic approach that we would do for smaller tumors, we would still tend to do a more of a longer course of radiation and five or six weeks of treatment, but we tend to do it combined with chemotherapy. And the reason for doing that is twofold. One is because the chemotherapy can make the radiation work better. And the second reason is the chemotherapy and radiation as compared to radiation alone or chemotherapy alone improves the chances that cancer will, will will be stay dormant longer and the patients will live longer. More recently, now we're starting to see that in patients who have chemo and radiation by adding another treatment called immune therapy on top of the chemo and radiation, we can actually improve those chances even better. So the paradigm has shifted a little bit in terms of treatment of advanced lung cancer, not just by using radiation and chemo but by using radiation, chemo and immune therapy and allowing patients to live longer and potentially have their cancer not come back sooner.

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So we'll talk more with our next guest about immunotherapy. But just in the last minute, maybe just comment about the role of of radiation in palliation. When people have, particularly if they have multiple areas that need palpating, say in the brain where you have maybe three metastasis, how would you do that with radiation.

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So again, I think the the paradigm of how we treat palliative patients, how we treat radiation with palliation has changed as well in the last couple of years. So if patients have more widespread metastatic lung cancer, I still think there's a very good role for palliative radiation for symptom control, pain, bleeding, that sort of thing. And we tend to short courses of radiation with good desired effect in most patients in terms of reducing their pain or reducing the chances that their cancer won't bleed anymore. But if cancer has spread in a limited number of spots, there is now a rule for using that type of treatment we talked about called stereotactic radiation to control the cancer as much better and there's a it's definitely a changing, ever changing landscape in terms of using stereotactic radiation. So for the for the case that you mentioned where there's three small lesions in the brain, if there's no other cancer left or another cancer that's active in the body, then using something like stereotactic radiation is very well is very well known and shown to to improve the control rates within the brain as opposed to treating the whole brain with radiation that can have more side effects. And so there is a there's a changing landscape in terms of doing that. With stereotactic radiation. I could go on and on about this, this is probably another probably another 20 minute discussion about it that really is

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a field that's changed dramatically. And I think it's very important that public understand that it's changed and that the these treatments are all available the Juravinski Cancer Center with experts like an end here to direct the radiotherapy. So thank you so much for coming in this afternoon and and explaining the complexity of radiotherapy in the context of lung cancer.

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Thanks very much. I really appreciate it.

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We're gonna take a short break on 900 ch ml. We'll be right back with the latest edition of the cancer assist show. The cancer assist show was brought to you by the cancer Assistance Program. and help when you really need it. sensitive

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subject straight ahead talk. This is the cancer assist show with Dr. Bill Evans and host Shawna Thompson on 900 ch ml.

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You're listening to the cancer assist show one 900 ch ml. I'm Shona Thompson here with Dr. Bill Evans. We're focusing on lung cancer this month. And as you heard in the last segment, there's a lot that's changed about radiation therapy. And we're about to talk about one of the more exciting advancements, I think that people have been hearing more and more about Bill. Well,

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there's been a huge change in the management of lung cancer. And we're going to hear from Dr. Peter Ellis, who's the head of medical oncology at the Juravinski Cancer Center about those changes. And Peter is a lung cancer specialist. And we used to talk about chemotherapy for lung cancer. Now more appropriately, we should talk about systemic therapy because you have multiple tools you can use now in the treatment of lung cancer and and other malignancies as well. And I think for almost every stage of lung cancer, just as we were talking earlier, but radiotherapy about every stage now can be a target for a systemic therapy. So Peter, maybe we'd be we'd start with telling, having an audience hear a little bit from you about your role as a systemic therapist treating lung cancer, and even how you got into this area of specialty because many people used to think that was kind of a no man zone to go, there wasn't much happening at early times. And now it's amazingly changed.

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So thanks so much for the opportunity to come in today. And I think you're iBill when I was training, people were very reluctant to even send patients for consideration of systemic treatment for lung cancer, there was so much nihilism. And I cannot believe how things have changed in the last five or 10 years, almost every meeting that I go to now there's something new, there's something exciting, there's something that I want to bring home and do tomorrow. And so the face of treating lung cancer has just changed enormously. And

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it's a little hard to know exactly where to start, oh, I suppose we could start with some early stage and talk about the role of systemic therapy and then move into locally advanced and then all the changes that have happened in metastatic disease. So let's try that and see how it works. But in early stage disease, certainly for stage one, that's been resected. Usually, there's nothing but follow up to be done. But in stage two, there is a role for systemic therapy isn't there.

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So we will affect patients chemotherapy, who have had surgery for stage two, or even stage three lung cancer. And we know those people are at risk of having their cancer come back in the future. And we know that giving chemotherapy lowers that chance. And my goal, when I say someone is to be able to say what can I do to increase your chance of remaining free of cancer in the long term. And the good thing is, is that I can improve the odds for people

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and the treatments relatively short, right? It's what

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so if you're getting chemotherapy after surgery, you're looking at around 16 weeks of treatment, coming once a week, some of those you might be in the cancer center having treatment for five or six hours. Some of those days, you might be in and out in an hour. It just depends on what part of the treatment you're up to.

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And that treatments been around for a little while now. But what's changing is is the introduction of some of the molecular targeted therapies and immunotherapy and and Dr. Swaminathan touched on it in stage three disease where now we have immunotherapy available. Can we talk a bit about what do we mean by immunotherapy? And how is it being harnessed to help fight the cancer?

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So that's a great question, Bill. So there's there's a lot of hype about immunotherapy. I mean, it's the ants pants of treatment in cancer these days. I think everybody comes in thinking, Well, I must be going to get some immunotherapy because there's so much information out there, whether you look on the web, whether you go to meetings, it's it's being talked about everywhere. But what's in it's a really simple concept, in many ways that the cancer is very clever. The cancer can find ways of hiding from your body's immune system. It can send signals that says, you know, I'm a friend, don't attack me, leave me alone. And these treatments basically block those signals, and they enable your immune system to say, hey, you shouldn't be here, you're not really a friend at all. And I'm going to attack you and kill you. And what we found is that in many cancers, and in particular, in lung cancer, that these treatments have been effective, Amen and help everybody. But if we look at people that have stage four lung cancer, so advanced disease who have already had some treatment, where, you know, typically the average survival might have been six or seven months, we're seeing 20% of people alive at five years. And you know, that blows my mind. When I think about how far we've come with some of these treatments. And so if we think about stage three, and On some non small cell lung cancer, where typically these people would get chemotherapy and radiation treatment that would last over six or seven weeks, and then they'd be done and we'd follow them. We know a lot of those people would be at risk of having their cancer come back. But some of those people would be free of cancer in the long term. And so a drug called durvalumab, which is one of these immunotherapy treatments, given for a year. So it's given intravenously once every two weeks for a year cuts their risk of the cancer coming back by more than a half. And if we look at two years, there's an extra 10% of people alive. If we look at three years, there's an extra 15% of people alive. And well, we don't know what's going to happen in five years, because these trials haven't followed patients for long enough. But there could we might be it might be that we double the number of people that are alive at five years, which again, is a really amazing situation where we hadn't made a lot of progress in improving five year survival for Stage Three lung cancer in the last 20 years. And at

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what cost to the patient. And I don't mean the financial costs, but what side effects would they experience. So

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the side effects of these immunotherapy treatments are really very different to chemotherapy. So everyone thinks about chemotherapy as being nasty, horrible poison. And it's really not that bad. I'm going to say most for most of the time, but these immunotherapy side effects are quite different. So if we make your immune system more active, then there's a risk that that's going to cause inflammation in other areas of your body. And so you can see inflammation in the lungs or the liver, you can see inflammation in the bowel that might cause problems with abdominal pain or diarrhea, might cause simple things like rash, or itching. And then it can affect the function of different glands in your body. And the thyroid is one in particular where it may become overactive. Or it may become underactive, and it's probably one in five people who might get one of these side effects. And mostly, they're mild or moderate, rather than severe. The good news is, is that if that does happen, if your immune system gets to sort of ramped up, there are things that we can then give to try to calm that down and settle those responses.

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I guess there are a few patients with immunological diseases who aren't candidates for these drugs as a result of having an underlying immune system problem.

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So the inflammation that I talked about is really what's called an autoimmune disease. And these types of diseases happen naturally. And so if you have an autoimmune disease, and this might be something like systemic lupus, there's a lot of other autoimmune diseases, we tend to be reluctant to offer these patients immunotherapy because of the fact that we run the risk of their underlying disease getting a lot worse with the immunotherapy treatments. But that's still uncommon. It's the majority of people really, that are able to receive these immunotherapy treatments. Now,

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the big changes have really taken place in the management of what we call non small cell lung cancer, particularly when it's metastatic because we've had not only immunotherapy, which we can talk about a bit more later, but also in identifying some of the changes in the Djinn genes within the cancer that allow us to target drugs at this specific molecular abnormalities, and then talk a bit about that.

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So our basic science sort of researchers have really provided huge insight into non small cell lung cancer. So we used to think that this was just one big disease that we would treat all the same with for all people. And for what's called adenocarcinoma, we've come to learn that really, it's a whole series of diseases within the one disease. And a lot of the time you can find these abnormal genes, or what we would call molecular abnormalities, where something has gone wrong with the DNA, the building blocks of the cell in that particular cancer, and that's driving the growth of the cancer. And so if you can find one of these abnormal genes, and you have a drug that will turn off the function of that gene, it becomes a highly effective treatment for that disease. So one example is something called the epidermal growth factor receptor. And we find mutations of the epidermal growth factor receptor in probably 15, or maybe 20% of people. There's certain groups of people, so people of Asian ethnicity, where they might happen as high as 30, or 40%. And instead of giving these people chemotherapy, we've now give them a pill. And that is more effective. So more than doubles the chance of shrinking the cancer. It probably doubles the time that you keep the cancer under control, so it becomes far more effective. And the side effects are in general, more easily tolerated than chemotherapy. So these particular drugs, the common things would be rash and diarrhea, rather than the side effects of chemotherapy that you see like nausea and vomiting or infection or fatigue. So now we have a better treatment option, we have a treatment option with fewer side effects. And so that really results in better quality of life for these patients.

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So you mentioned EGFR, I'll shorten it down to what you said. But there's really a whole series now of molecular abnormalities that go by middle short acronyms of ALC and ret, and B, Raf, and so on, so forth. And it seems to me there's more and more appearing all the time. And there's also been some very resistant driver oncogenes ln k RAS for which it sounds like there may even be some new drugs available for them. So the scene is changing from as Peter described, one, one entity, we treated all the same to a whole lot of sub entities. But how do you find out what the what kind of tumor you have in front of you, so to speak, to do to select the right molecular targeted therapy.

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So this is where we have to work really closely with our pathologists and the molecular biologists, in order to be able to analyze these tumors. And again, if we think back 1020 years, all we really needed from our surgeons or our respirology, was to get a few cancer cells, and they could say, this is cancer. And that was about the information that we needed. And now we need so much more from our pathologists. And really, we're asking something new almost every month, we need the people getting and making the diagnosis for lung cancer, we need them to get bigger samples so that we can do this additional testing. And we're now doing more complex tests to figure out what genes are abnormal code, next generation sequencing. So in some ways, it's a bit like a black box, you put a sample into the machine, it does some fancy work and spits out a whole series of information. But it's really looking at trying to do complex analysis of these genes to understand what genes are abnormal, and to really help to understand whether this cancer might have the opportunity of an aural targeted therapy to treat the cancer with

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now in relation to immunotherapy. Are there tests also to determine which patients might be most responsive to the immunotherapy?

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So there's the there's some controversy about that bill. So the the test we most commonly do is something called PDL one or program death one ligand. And if you're a little while ago, I talked about the cancers being able to send a signal to the immune system that says, you know, I'm a friend don't attack me. It's this PDL one signal that may be the way in which the cancers hide from the immune system. And so we would often test tumors to see whether they have this signal called Pdl, one in the cancer. And if someone has a high level of this Pdl, one signal, then the preferred treatment for them now would be to just give them one of these immunotherapy treatments. And we were in a situation before we had immunotherapy where the average survival of someone with stage four lung cancer might have been a year. And now with these new immunotherapy treatments, we're talking about the average person living two years. You know, we don't have a good idea as to what proportion of people are going to live for five years or longer. But if we look at melanoma, which is another tumor where these immunotherapy treatments have become very successful. In stage four melanoma with people treated with chemotherapy, you're now seeing patients between 15 and 20% of people alive at 10 years. And that is phenomenal. You know, that's what we hope to see was this breakthrough where we could find something that would provide long term survival for some of these patients. That

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is the hope and part of the way of getting there perhaps is combining either immunotherapy drugs or immunotherapy with chemotherapy or maybe the molecular targeted therapy. Do you see that as the the future? So

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we're already looking to combine chemotherapy and immunotherapy treatments. So if you have a cancer that doesn't have a high level of this signal called PDL one, then we can't give immunotherapy on its own. And some studies now have shown that if you combine chemotherapy and immunotherapy, you see very similar results to the immunotherapy on its own for those that have have high levels of PDL one and it increases the likelihood of shrinking the cancer controls at for longer, it improves survival. And now even in this group of patient patients, we're seeing 50% of people living beyond two years. So

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that's pretty fantastic. And again, coming back to cost but this time, maybe the financial side of it. I think all of these drugs are tremendously expensive. Are they not and also demanding on And the cancer centers resources for chair time in the chemotherapy suite, for example.

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So you're right about the cost of the drugs, these agents a year of any of these immunotherapy drugs is probably about $100,000. And so I think the government is struggling in trying to understand how they're going to implement these therapies that are so costly. You would know yourself bill, having worked with cancer care, Ontario that the cost of new anti cancer drugs has really risen exponentially. And that's the real struggle is how do we bring these treatments to patients. And

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these drugs are being used, as you mentioned, across a wide variety of cancers, so that it is a real stress on the healthcare system, but one that's translating, as you very eloquently described, into improved survival for individuals where there was frankly, very little hope of survival in the past. And we're all just amazed by the results in melanoma and really hope we'll see it translate into an area like lung cancer, which in the past had been pretty stubborn and not responsive to treatment. But it really is a remarkable turnaround. And I want to thank you very much, Peter, for coming in this afternoon and talking about these advances. It's it's very encouraging, and I hope that our audience listening finds it encouraging as well.

36:20

Thanks for having me.

36:23

You're listening to 900 ch ml, and the cancer assist show is brought to you by the cancer assistance program help when you really need it. When we come back, we'll be speaking with Ashley Leggett from the cancer assistance program about their biggest fundraising event of the year. She

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want answers about cancer, you'll find them on the cancer assist show with Dr. Bill Evans, and host Shawna Thompson on 900, CH ml, you're

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listening to 900 ch ml. And this is the cancer assist show, which is of course, brought to you by the cancer assistance program help when you really need it. I'm still kind of blown away by the conversation that we had with our two oncologists about lung cancer, the advancements in there. And you know, Bill, you were just ending off the last segment by talking about the financials that are involved in immunotherapy and how expensive that is. And that brings us to the cancer assistance program because they provide so many supports all across Greater Hamilton, for people who are going through the experience of cancer treatment. But while it's provided free to people, it doesn't mean that it's free to provide a man that's why actually like it isn't with us. Maybe

37:30

I should just interject there. Because all that success that we're talking about in lung cancer and other cancers with new therapies means that people are coming to the Cancer Center for more treatment for a longer period of time. So there's increased demands. And I think on a previous show, we talked about sort of financial toxicity, the out of pocket costs because of parking, because of travel, the inconvenience, maybe the impossibility of getting there without assistance from an organization like the cancer systems program to get a drive to get to all those treatments that are working so well. So I think the importance of the cancer assistance program is only increasing as the success of treating cancer increases. So Ashley, you're such a key person to all this. And you've just had a big event this month in November. Why don't you tell us about the gala and how everything went?

38:23

We did thank you so much. It was then it was a fantastic night. heartwarming to say the least our 25th year, a great celebration and as a organization that is essentially funded by the community to have the community show up and a bunch of our supporters be there is truly amazing. And yeah, I think we're all just thrilled with the results. And I think everyone had a great night. I have to thank some of our sponsors that made the evening possible. Our presenting sponsor of course, Johnson Chrysler, our dinner sponsor LiUNA, local 837 Our community champions Radient logistics FirstOntario Credit Union CIBC Wood Gundy, community ambassadors cardi instruction call your Benson capital and some of our friends diamante investments McHugh Whitmore, LG Wallace funeral home and Metro failed Freightliner. And this doesn't include the many many donors that contribute to the live auction, the raffle envelope prizes and as well as our dedicated volunteers the night of and those that assists me on the planning committee. I mean, it's a it's a huge team effort.

39:26

It's a big community effort, isn't it? I should also say signal out Leanne for her fabulous job of shaking every last nickel and dime of everyone's pocket.

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He has normally deep pockets and Lane phones. Pockets are actually just a little bit deeper than Phillip

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certainly so I'm gonna have very upset grandchildren this year because there won't be any presents for Christmas so she's got all my money.

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Yeah, she's fantastic. We absolutely lovely and if you haven't seen her before I do. She's at a meant so many community events now. doing fundraising for different charities throughout the city. And she truly is amazing and amazing at what she does. And she's unique in the sense that she's one of the only kind of philanthropy oriented auctioneers that are around like she's built quite a niche in that world for herself, we're very thankful for her. And

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she has a way around that special event focus of a need, you know, identifying a need, having a volunteer, speak to that need, and then going after the audience to support that need in a big way. So that again, proved to be very successful. Yes, and

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I've been in need this year was born, again, personal care items, which we also did last year. But we don't like to repeat the same thing every year. But the unfortunately, that is not going away that need for us, we're seeing more and more people coming through our doors on a weekly basis. We're averaging about 20 clients a day just coming through the doors to access some of our services. And the personal care items include nutritional supplements and continence products, wigs and mastectomy garments. And we're just seeing more and more demand for these services. So we absolutely had to focus in on that priority that night to raise the funds needed to continue to deliver that.

41:10

And then reality, you're effectively rationing these services, like we used to give more nutritional supports per month, we had to cut back. Sure the same is true in terms of the continents supply. So there really is a big demand for these products. They are expensive. But we need to do good fundraising in order to provide the needs of the community. So if you didn't come to the gala, and you haven't spent all your Christmas money yet, well,

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actually, I have a suggestion for Christmas, I will probably repeat this in the next show as well. But for Christmas, one thing that we do in my family is we put a little card in that says basically, you know X number of dollars were donated to such and such a charity on your behalf. And I love that and it's such a great way to you know, you still celebrate the holidays in the traditional way. But you know, a little good goes back into the community as well.

42:06

We're starting to see more and more of that. And I'm a huge fan of that. I mean, you know, there's only so much stuff that people need at a certain point. So it's really nice to give back and it's good to teach kids that too.

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Now actually we only have about a minute or two left and I know you wanted to talk about a special promotion that's coming up in December with Sarkies. I

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did so we are very, very thrilled and we announce it the night of the gala. But if you weren't there we've partnered with Sarkies Fine Foods and we are going to be one of their charities of choice. So they're going to hold a few benefit weeks for us throughout the year and there is one coming up through the week of Wednesday, December 4 through Tuesday December 10. And if you visit any of the threes Archies locations that week $1 from every signature on entree sold will be donated back to cap and they'll also be accepting donations on site throughout that week as well. So stop in for all your holiday needs.

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absolutely excellent fundraiser and we're very grateful to the Sarcone family for the support to cap.

43:06

This has been the cancerous this show. Brought to you by the cancer Assistance Program.